

# PATENT SPECIFICATION

(11) 1265 642

## DRAWINGS ATTACHED

- (21) Application No. 627/70 (22) Filed 6 Jan. 1970  
 (31) Convention Application No. A 10869 (32) Filed 20 Nov. 1969 in  
 (33) Austria (OE)  
 (45) Complete Specification published 1 March 1972  
 (51) International Classification B 61 f 5/30//5/26  
 (52) Index at acceptance B7L 15A



## (54) IMPROVEMENTS IN OR RELATING TO RAIL VEHICLE BOGIES

(71) We SCHWEIZERISCHE WAGONS—  
 UND AUFZUGEFABRIK AG SCHLIEREN—  
 ZURICH, a Corporation organised under the  
 laws of the Confederation of Switzerland, of  
 Schlieren (Zurich, Switzerland), do hereby  
 declare the invention, for which we pray that  
 a patent may be granted to us, and the method  
 by which it is to be performed, to be partic-  
 ularly described in and by the following  
 statement:—

This invention relates to a rail vehicle bogie  
 having an axle box housing attached thereto  
 by means of a shock damping guide.

In accordance with the present invention  
 said guide comprises a guide pin attached to  
 the bogies, a casing attached to said guide  
 pin, two coaxial springs arranged concen-  
 trically around said guide pin and casing, at  
 least one of said springs acting via a thrust  
 ring on an annular friction member formed  
 of a plurality of segmental friction bodies,  
 each segmental friction body being so shaped  
 as to provide in the annular friction member  
 a conical surface which co-operates with a  
 further conical surface to that the action of  
 said spring presses the friction bodies against  
 the guide pin casing, the segmental friction  
 bodies being supported on the axle box hous-  
 ing by means of a rubber ring having a cross  
 section substantially of inverted L-shape.

Specific embodiments of the invention will  
 now be described by way of example with re-  
 ference to the accompanying drawings, in  
 which:

Figure 1 is a vertical cross section through  
 part of the vehicle bogie in a first embodi-  
 ment of the invention, and

Figures 2 and 3 are partial sections through  
 a part of a vehicle bogies in two further em-  
 bodiments of the invention.

As shown in Figure 1, a vehicle bogie  
 frame 1 carries a fixed guide pin 2 on which  
 a casing 3 is firmly attached by means of a  
 plate 4 and screws 5. Two coaxial springs 6,  
 7 concentrically surround the guide pin 2  
 and are supported at their lower ends on two  
 staggered surfaces 8, 9 of a thrust ring 10.

As shown, the outer spring 6 is longer than  
 the spring 7 so that its upper end supports  
 the bogie frame 1 when unloaded. When the  
 bogie frame 1 is lowered under the influence  
 of load, the inner spring 7 also takes up part  
 of the load.

The thrust ring 10 has on its underside a  
 conical surface 11 which engages a corres-  
 ponding conical surface on an annular fric-  
 tion member formed by a plurality of seg-  
 mental friction bodies 50. Each segmental  
 body 50 comprises a part 12, a main part 13  
 and a friction lining 14. Under the spring-  
 ing action of the springs 6 and 7 transmitted  
 through the co-operating conical surfaces,  
 the friction linings 14 of all the segmental  
 bodies 50 are pressed against the casing 3  
 of the guide pin 2 so that friction between  
 said linings 14 and the casing 3 provides  
 shock damping dependent upon the load.

Between the main parts 13 of the segmental  
 bodies 50 and a ring 16 provided on the axle  
 box housing 15, there is arranged a rubber  
 ring 17 having a cross section substantially  
 in an inverted L-shape, by means of which  
 the segmental bodies 50 are resiliently sup-  
 ported on the housing 15.

The inner peripheries of the thrust ring  
 10 and of an opening in the housing 15 which  
 admits the guide pin casing 3 are each pro-  
 vided with an annular groove carrying a seal-  
 ing or packing ring 18, or 19 respectively,  
 which prevent access of dirt to the friction  
 surfaces between the linings 14 and the casing  
 3.

In the embodiment shown in Figure 2, the  
 guide pin 2 and casing 3 are concentrically  
 surrounded by two coaxial springs 20, 21. The  
 inner spring 20 is supported at its lower end  
 via a thrust ring 22 on an annular friction  
 member formed of a plurality of segmental  
 friction bodies 50 and carries the bogie 1  
 in its unloaded condition. Each segmental  
 friction body 50 comprises a main part 23  
 and a friction lining 24 which co-operates  
 with the casing 3 of the guide pin 2.

On the underside of the annular friction

1265642

5

10

15

20

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95

member formed by the bodies 50 is a conical surface which engages a corresponding conical surface on a support or counter ring 26 on which rests the outer spring 21 which takes up part of the load only when the bogie frame 1 is loaded. Under the action of the spring 20 the co-operating conical surfaces press the friction linings 24 of all the segmental bodies 50 against the casing 3 thereby providing frictional shock damping.

Between the support ring 26 and the axle box housing 27 there is inserted a rubber ring 28 having a cross section substantially in an inverted L-shape, whereby the segmental bodies 50 are resiliently supported via the support ring 26.

The main part 23 of each segmental body 50 has at the top and bottom thereof a recess, which recesses form annular grooves in the assembled annular friction member. Each annular groove holds a packing ring 29 which rings are applied against the casing 3 to prevent access of dirt to the friction surfaces between the friction linings 24 and the casing 3.

In the embodiment shown in Figure 3 the guide pin 2 and casing 3 are concentrically surrounded by two coaxial springs 30, 31. The inner spring 30 bears on a thrust ring 32, and the outer spring 31 bears on a counter ring 33. The spring 30 carries the bogie 1 in its unloaded condition and the spring 31 takes up part of the load when the bogie 1 is loaded.

Each of the rings 32, 33 has a part 34, 35 with a conical surface 36, 37 respectively.

The casing 3 is surrounded by an annular friction member formed of a plurality of segmental friction bodies 50 each comprising a main part 38 and a friction lining 39. The main parts 38 of the segmental bodies 50 are so shaped as to provide in the annular friction member two conical surfaces each corresponding to one of the conical surfaces 36, 37. The friction linings 39 of the segmental bodies 50 are pressed against the casing 3 by the action of the spring 30 transmitted by the co-operating conical surfaces, thereby to provide frictional shock damping.

Between the counter ring 33 and the axle box housing 40 there is arranged a rubber ring 41 having a cross section substantially in an inverted L-shape whereby the segmental bodies 50 are resiliently supported via the counter ring 33.

Wiper rings 42 are carried by the inner peripheries of the thrust ring 32 and of the counter ring 33, which wiper rings are ap-

plied against the casing 3 to prevent access of dirt to the friction surfaces between the friction linings 39 and the casing 3.

#### WHAT WE CLAIM IS:—

1. A rail vehicle bogie having an axle box housing attached thereto by means of a shock damping guide, said guide comprising a guide pin attached to the bogie, a casing attached to said guide pin, two coaxial springs arranged concentrically around said guide pin and casing, at least one of said springs acting via a thrust ring on an annular friction member formed of a plurality of segmental friction bodies, each segmental friction body being so shaped as to provide in the annular friction member a conical surface which co-operates with a further conical surface so that the action of said spring presses the friction bodies against the guide pin casing, the segmental friction bodies being supported on the axle box housing by means of a rubber ring having a cross section substantially of inverted L-shape.

2. A rail vehicle bogies as claimed in claim 1 wherein the conical surfaces are provided between the thrust ring and the segmental friction bodies, which bodies bear directly on the rubber ring.

3. A rail vehicle bogies as claimed in claim 1, wherein the conical surfaces are provided between the segmental friction bodies and a support ring, which support ring is supported on the rubber ring.

4. A rail vehicle bogies as claimed in claim 1, wherein the conical surfaces are provided between the thrust ring and the segmental friction bodies, and further conical surfaces are provided between the segmental friction bodies and a counter ring, which counter ring is supported on the rubber ring.

5. A rail vehicle bogie as claimed in any one of claims 1 to 4, wherein packing rings or wiper rings are provided to prevent access of dirt to the friction surfaces between the segmental friction bodies and the guide pin casing.

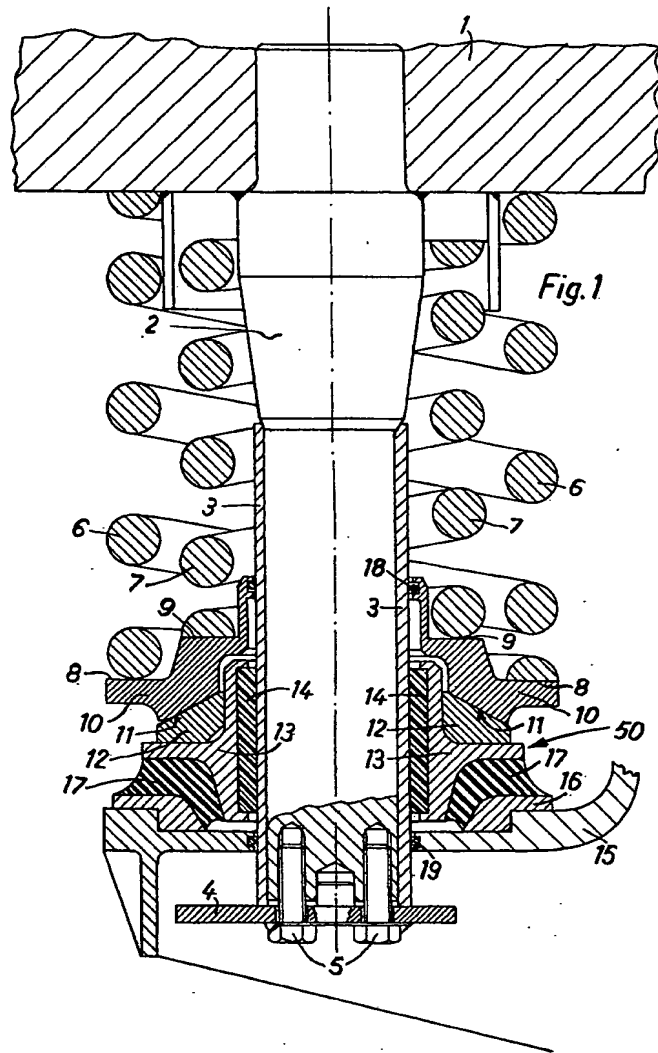
6. A rail vehicle bogies substantially as hereinbefore described with reference to and as illustrated in any one of Figures 1 to 3 of the accompanying drawings.

SCHWEIZERISCHE WAGONS—UND  
AUFUGEFABRIK AG,

Per:— Boulton, Wade & Tennant,  
112 Hatton Garden,  
London, EC1N 8NA,  
Chartered Patent Agents.

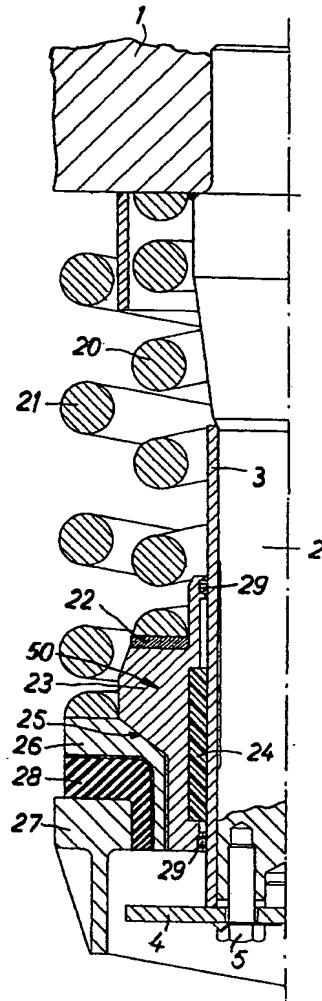
1265642 COMPLETE SPECIFICATION

3 SHEETS This drawing is a reproduction of  
the Original on a reduced scale  
Sheet 1



**3 SHEETS** *This drawing is a reproduction of the Original on a reduced scale*

**Fig. 2**



1265642 COMPLETE SPECIFICATION

3 SHEETS

This drawing is a reproduction of  
the Original on a reduced scale  
Sheet 3

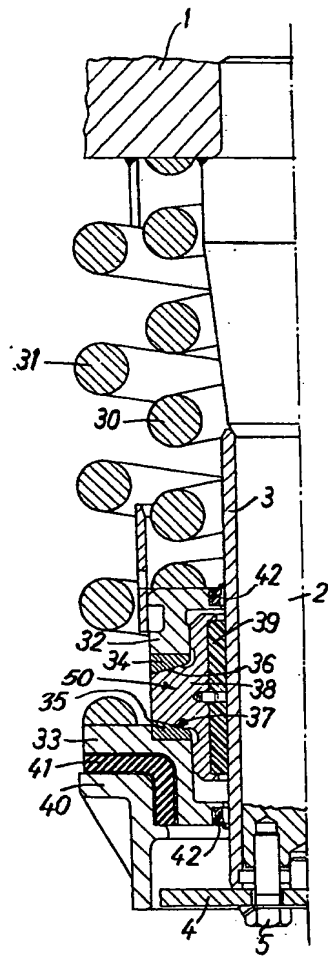


Fig. 3